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ABSTRACT

A training study, consisting of three treatment cycles for a total of nine 50-minute class sessions, was conducted to determine the combined effect of directed reading-thinking activity (DRTA) and conceptual mapping as organizational strategies for college freshmen of low writing ability. Each cycle included DRTA instruction, mapping, discussion, and the writing of an essay based on an expository text. Students in the control group read the same assignments and wrote essays on the same topics under the same time restrictions, but did not have DRTA or mapping instruction. Rather, the control students were taught brain storming and clustering of ideas as a planning technique for writing. Results revealed that the experimental students used significantly more main ideas in their essays than did control students, but that the experimental group of poor ability writers used slightly fewer subordinate ideas than did control group students. The findings suggest that conceptual mapping and DRTA helped students recall ideas needed during the planning and writing of thesis-support and summary-analysis writing tasks. (HOD)

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FACILITATING COMPREHENSION AND WRITTEN RECALL OF EXPOSITION THROUGH DRTA INSTRUCTION AND CONCEPTUAL MAPPING

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Recently, an increasing amount of research has focused on the influence of structural and content characteristics of texts on comprehension and on instruction which directs readers to discover the structure of expository texts. Also, researchers have analyzed comments of writers as they plan the content and the organization of exposition (Emig, 1971; Perl, 1979; Flower & Hayes, 1981). Expository texts present ideas that are not of equal value: Some ideas control other ideas to form a hierarchy of subordinate and coordinate propositions which are related to form a coherent text (Christensen, 1967; Grimes, 1975; Meyer, 1975). Readers may find exposition difficult to read because these texts often contain high-level abstractions and unfamiliar

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concepts. Also, the organization of a text may not be discernible; thus, a reader has difficulty forming a gist or macrostructure of a text (Kintsch & van Dijk, 1978). Similarly, expository texts are difficult to produce, for writers must formulate and translate a mental representation of a plan with integrated goals to construct a coherent text of concepts that are logically related, organized, and developed; the product must be clear and understandable to a reader (Flower & Hayes, 1981).

Students are often asked to read expository texts and to select ideas from them as subject matter for writing assignments. Thus, students must use or develop strategies for comprehending and for producing exposition to meet the requirements of a classroom assignment. The purpose of this study was to test a reading method, Directed Reading-Thinking Activity (Stauffer, 1969), and a organizing and planning technique, conceptual mapping (Hanf, 1971; Buckley & Boyle, 1981), for their effectiveness in directing students to use skills and strategies for comprehending and producing coherent expository texts.

Several studies have investigated instruction designed to improve comprehension of expository texts. Few studies have investigated the transfer of skills for reading to the task of writing exposition. Bartlett (1978) instructed ninth grade students to attend to the organization of brief texts and to use this organization to produce a written recall of these texts. These students recalled more material from the reading than students not receiving instruction directed to text organization. Studies by Geva (1981, 1983) and Armbruster and Anderson (1980) indicated that instruction which required their student subjects

to "parse" a text systematically made them attentive to conjunctions and conjunctive adverbs that logically connect ideas which form text structure and promoted higher scores on post-test measures of comprehension. These students learned prescribed, structured mapping and flowcharting techniques to represent the organization of ideas and propositions in a text. The students had to master technical terms and flowcharting forms before reading independently. Instruction focused on single paragraphs or page-long selections, rather than longer texts typically assigned in college-level courses.

Directed Reading-Thinking Activity or DRTA (Stauffer, 1969; 1970) and cognitive or conceptual mapping (Hanf, 1971; Buckley & Boyle, 1981; Davidson & Bayliss, 1979; Davidson, 1982) provide an alternative to these highly structured strategies for reading, recalling, and evaluating expository texts. Students do not need to know technical terms or precise flowchart forms in order to use DRTA and mapping. DRTA depends on active group interchange where readers present their concepts of the relative importance of ideas, their meaning, and their semantic relationships. The oral protocols elicited from readers during group reading offer evidence that DRTA spontaneously stimulates activation of content and form schemata. Thus, DRTA involves readers in applying world-knowledge and knowledge of text organization to determine how ideas in texts are linked and ordered hierarchically. Furthermore, as readers support their predictions about the ideas in a text and their relative importance, they reveal their process of inference formation and the degree to which their

internal propositional representation matches corresponding propositions in the text (Kintsch and van Dijk 1977).

Conceptual or cognitive mapping (Hanf, 1972; Buckley & Boyle, 1981; Davidson 1979; 1982) fits into a tradition of inventive strategies or "heuristics" readers and writers can use to help them remember content and its arrangement within texts. Conceptual mapping is a creative organizational strategy students use to help them recall main ideas and themes from their reading or to invent and arrange material for their own essays. Mapping is a heuristic procedure for its use is "neither purely conscious nor mechanical; intuition, relevant experience and skill are necessary for effective use" (Young, 1976, p. 2). By using words and/or pictures or diagrams, students construct a representation of the important ideas and themes from a text and their personal responses to them. After making their maps, students share them with peers to allow oral rehearsal of main ideas and themes. They benefit from others' insight into the significance of these ideas as depicted in various types of maps.

This study was designed to determine the combined effect of DRTA and conceptual mapping as organizational strategies college freshmen of low writing ability can use during their reading of expository texts and during their planning and organizing of an essay based on their reading. One purpose of this study was to assess the effects of DRTA and mapping instruction for directing readers who become writers to comprehend and remember ideas from reading. Thus, a writing assignment in the form of a summary-analysis task was given students in order to assess their ability to recall ideas from their reading. A second purpose was to

assess the effects of instruction on the selection and organization of ideas from reading in this summary-analysis writing task. The investigator hypothesized that DRTA and mapping instruction would direct experimental treatment students to identify and organize the levels of ideas in an expository text. Also, experimental treatment students would recall more main ideas and high subordinate ideas in their planned essays of recall and assessment of their reading than control group students. Main ideas and high subordinate ideas refer to Christensen's concept of levels of generality such that certain ideas are higher in a text and have more ideas descending from them, explicating and supporting their meaning (Christensen, 1967).

The two hypotheses were:

(1) Experimental group students will use significantly more main ideas from the reading assignment in their essays than control group students.

(2) Experimental group students will use significantly more high subordinate ideas from the reading assignment in their essays than control group students.

Two exploratory questions were:

(1) Is there a significant relationship between writing ability, average and poor, and the effect of treatment for the variables of (a) main ideas and (b) high subordinate ideas found in students' essays?

(2) Is there a significant interaction between treatment and (a) main ideas and (b) high subordinate ideas?

METHOD

Subjects

Two groups of college freshmen at the University of California, Berkeley provided the control and experimental treatment groups for the pilot study. Entering freshmen must take a developmental writing course if they score below 600 on the English Composition Test (CEEB) and if their combined holistic score on an examination essay is eight or greater on a scale of 2 to 12. Most students are randomly assigned to sections of twenty students.

Students with holistic scores of 8 were considered average writers. Poor writers included students with holistic scores of 9, 10, 11, and 12 or English as a Second Language learners with these same scores. A stratified random sample was selected of four poor and four average students from the experimental group and four poor and four average students from the control group for a total N of sixteen students. The experimental and control group instructors were experienced college-level composition teachers.

Procedure

The study occurred during the first five weeks of the Fall, 1983 semester. The study was a training study, consisting of three treatment cycles for a total of nine fifty-minute class sessions. Each cycle included DRTA instruction, mapping, discussion, and the writing of an essay based on an expository text. During the first two cycles, students read an expository essay of five to eight pages per cycle using DRTA and constructed

a map after reading and after receiving the writing assignment. The two writing assignments in the first two cycles where thesis-support writing tasks which asked students to apply their own experiences to ideas or opinions expressed in their reading assignment. Students had one week to write and produce a final draft of their essay. Similarly, students in the control group read the same reading assignments and wrote essays on the same writing topics under the same time restrictions. They did not use DRTA or mapping instruction; rather, students were assigned the readings and asked to read them before coming to class and participating in a class discussion. Students were taught brain-storming and clustering of ideas as a planning technique for writing.

The data presented in this report was collected from the third treatment cycle which was preparation for the students' first mid-term essay written during a fifty minute time period. Because of time limits for writing the essay and for preparing for the writing task, the mid-term exam offered controls to allow for a comparison of essays which were written under identical conditions.

During the third cycle, the treatment for experimental group students consisted of three fifty-minute class periods two days apart. During the first period, students used DRTA to read the first five of ten pages of Paul Roberts' informational essay about the history of the English language called "Something About English" (1970). The essay consists of a collection of facts arranged chronologically. Students finished reading the essay

and developed conceptual maps to depict important ideas and their arrangement from the essay. During the second class period, five students talked about their maps, introducing topics for discussion. Students were told to review Roberts' essay and to consider the topic of language change without knowing the exact topic for the mid-term essay.

Control group students similarly spent two class periods preparing for the mid-term essay. Students read the Roberts' essay before coming to the first class period. The instructor led a discussion based on comprehension questions she devised and on comments students made during two class periods. Students were also told to review the essay and to consider the topic of language change without knowing the essay topic. During the five week pilot study period, the instructor familiarized students with planning techniques for selecting manageable topics for writing.

During the third class period, control and experimental group students had fifty minutes to plan and write an essay on the following topic: "Language change is a prominent theme in Roberts' essay "Something About English." According to Roberts, what were some of the major influences or developments which promoted changes in the English language during its long history?" This topic was selected because it is a summary-analysis task typical of ones students receive in content area classes, and it lends itself to an analysis of the effects of instruction on identifying, selecting, and using ideas from reading in producing an essay.

DATA ANALYSIS

The analysis of the essays from the third treatment included coding the students' essays for evidence of main, high subordinate, or low subordinate ideas from the Roberts' essay, "Something About English." Verbatim statments, paraphrases, or gist statements were coded. Before coding students' essays, two raters independently read the Roberts' essay. The raters selected those propositions that were main ideas or high subordinate ideas. Remaining propositions were considered to be low subordinate ideas. A third reader also read the essay and was used to reconcile disagreements.

Fifty-two main ideas and forty-four high subordinate ideas were identified. These main and high subordinate ideas were used to code the essays written by the eight experimental and the eight control students. Two raters independently coded the essays. The coding was compared and differences were resolved through discussion. Interrater reliability was high, r=.80 (Pearson's product moment coefficient).

The Mann-Whitney U test, a non-parametric test, was used for significance testing. Kendall's Tau, a non-parametric measure of association test, was used to examine the treatment by ability interaction and the treatment by types of ideas interaction. Kendall's Tau was used to provide additional analysis of the contrasts detailed in the research questions.

RESULTS

The first hypothesis predicted that experimental group students would use significantly more main ideas in their essays

than control students. The total number of main ideas produced by experimental group writers and control group writers was 72 and 47 respectively. Results revealed that experimental students did use significantly more main ideas in their essays than control students ($U=52.5$, $p<.05$). The Kendall's Tau, corrected for ties, was .49, a high measure of association between use of main ideas and experimental group membership. Experimental group students seemed to benefit from the instruction such that they were able to distinguish main ideas from other ideas in the text.

The second hypothesis predicted that experimental group students would use significantly more high subordinate ideas than control group students. The total number of high subordinate ideas produced by experimental group writers and control group writers was 28 and 34 respectively. Results of the significance testing indicated that no significant difference existed between the control and experimental groups. However, Kendall's Tau of -.11 suggests a weak relationship between use of high subordinate ideas and control group membership. Control group students could recall important ideas, but they may have had difficulty deciding which ideas were main ideas.

The first exploratory question asked if there is a significant relationship between writing ability and treatment for the variables of main ideas and high subordinate ideas in the students' essays. Regarding main ideas, the analysis revealed that poor ability writers from the experimental group used more main ideas than did control group students (Exp. Poor, 41 vs. Control Poor, 21). Experimental average ability writers also used more main ideas in their essays than did average control

group writers (Exp. Average, 31 vs. Control Average, 26). Results showed no significant differences between writing ability and treatment group membership in the use of main ideas. However, for the poor writers in the experimental group the Kendall's Tau was strong at .46. This relationship suggests that the treatment may be aiding poor experimental group writers in discriminating main ideas from other ideas.

Regarding high subordinate ideas, experimental group poor ability writers used slightly less high subordinate ideas than did control group students (Exp. Poor, 20 vs. Control Poor, 23). Average control group writers used more high subordinate ideas than did average experimental group writers (Exp. Average, 8 vs. Control Average, 11). Results revealed no significant differences between writing ability and group membership in the use of high subordinate ideas in the essays.

The second exploratory question asked if there is a significant interaction between treatment and main ideas and high subordinate ideas. An interaction is indicated with the effect in favor of the experimental group with respect to main ideas.

DISCUSSION

Several conclusions can be drawn from this study. Experimental students who received DRTA instruction and made conceptual maps were able to recall in their writing significantly more main ideas from the reading than the control students. Thus, these strategies seem viable for directing students to distinguish main ideas from other ideas in their reading. Furthermore, DRTA and mapping seem useful in helping

students discern the structure of main ideas in an essay of high conceptual and informational density and to recall many of them and to select ones appropriate for answering a summary-analysis writing task. Experimental group writers were able to recall relevant main ideas that were germane to the writing topic they received.

Trends in the data suggest that with more subjects one may find that writing ability does not interact with treatment. However, the experimental treatment does appear to affect the ability to identify the types of ideas, main or high subordinate, in reading and to use them in written recalls. The treatment benefits both ability levels, and it is effective in helping students to identify the different levels of ideas in an essay.

These results have direct implications for instruction: namely, that the two strategies have a combined effect of assisting students in discerning the main ideas in an essay and in determining the structure of an essay. DRTA and mapping help students recall ideas needed during the planning and writing of thesis-support and summary-analysis writing tasks.

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